

FBEI UPDATES: Costs and Returns

Updates on Farm Business Economic Indicators

Oat Farm Characteristics, Income, and Production Costs

In this report... ERS continues its economic analysis of production characteristics, costs, and returns for major U.S. crop and livestock commodities. These analyses provide a unique perspective across production regions and are based on national surveys of farmers' and ranchers' production experiences. Policy makers and researchers will find the analyses particularly useful in understanding the factors underlying producers' costs and returns relationships. This *Update* report contains some of the preliminary findings from the survey. A later report will more fully explain oat farm characteristics, input use, production costs and their distributions, and other factors at various levels of disaggregation.

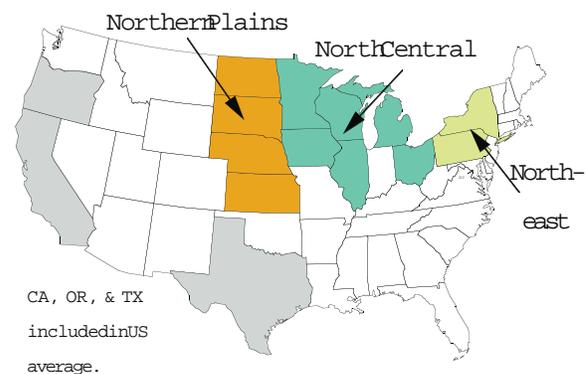
Farm Characteristics

During the winter of 1995, USDA surveyed oat growers in 15 major oat-growing States for the 1994 production year. These farms planted oats with the intention of harvesting it for grain, excluding those operations where oats were grown primarily as a cover crop. The sample of farms represents 158,812 operations of like type and size, and 94 percent of total 1994 U.S. oat production.

While oats are grown in most States, acreage is primarily concentrated in the Northern Plains, Lake States, Corn Belt, and the Northeast regions. For purposes of this report, three regions were defined based on common cultural practices and enough sample observations to provide statistically-reliable estimates (see map). Among the regions, 9 percent of oat farms (farms that grow oats) were in the Northeast, 69 percent in the North Central, and 18 percent in the Northern Plains. U.S. averages include other States besides those in these three regions.

Oats typically account for a minor percentage of the average farm's acreage. Farmers reported an average of 25 oat acres planted out of an average total acres operated of 619. Oat acres ranged from 2.4 percent of total acres in the Northern Plains to 7.3 percent in the Northeast. Of course, not all the farms' acres were cropland; most oat farms tended to specialize in livestock and much of the oats could have been used onfarm as feed (58 percent of farms reported onfarm use of the oats). On a value-of-

Oat Production Regions



production basis, oats made up only 1-2 percent of the farms' average total market value of crops and livestock.

Farmers reported average yields of 54.45 bushels per planted acre, somewhat less than the 67.77 bushels they expected at the beginning of the season. Besides the grain, farmers also harvested oat straw from nearly 70 percent of the acres (more in the eastern areas and less in the western). Oat straw can be a valuable secondary product as livestock bedding, particularly in the Northeast.

Oats were grown in rotation with several other crops. The most common rotation was with corn; 62 percent of farms surveyed reported corn planted in the previous year. In the Northern Plains 25 percent of farms reported continuous oats, although this was uncommon in the other regions.

On average, just over half of the oat acres were owned. The rest were split about 2 to 1 between cash-rented vs. share-rented. There was wide variability between cash and share rent among the regions.

A little over one-third of surveyed farms were considered non-commercial with total farm sales under \$50,000. The same percentage had sales over \$100,000. On a regional basis, however, there was wider variation. In the Northeast 52 percent of farms had sales under \$50,000 compared with 35 percent in the North Central and 29 percent in the Northern Plains. The percentage of farms in the

small commercial category (\$50,000-\$99,999) was about the same in each region.

Acreage Class

Surveyed oat farms planted an average of 25 acres of oats. Around 70 percent of the farms averaged 14 acres of oats and accounted for 40 percent of production. Around 20 percent of farms averaged 33 acres of oats and accounted for about 25 percent of production. Although fewer farms planted over 50 acres of oats, these farms accounted for nearly 35 percent of production.

Input Use

Farmers reported an average seeding rate of 2.76 bushels per acre, including the slight reseeded of some acreage. This was fairly consistent among regions. However, the use of home-grown seed varied considerably. Northeast growers used 21 percent home-grown seed, compared with 29 percent in the North Central and 70 percent in the Northern Plains.

Nearly three-quarters of farmers reported applying fertilizer with about equal application rates of nitrogen, phosphorous, and potassium. Farmers in the Northeast applied each nutrient at much higher rates than in the other regions. One-quarter of farmers reported using chemicals, primarily herbicides. As with fertilizer, chemical use was much more common in the Northeast.

Forty-three percent of oat farms reported using custom services, primarily in applying fertilizers and chemicals and in harvesting and hauling. Hired labor was seldom used.

Farm Income

The income statement for the average U.S. farm with oats showed net *cash* income of \$20,094.

Commodity receipts are primarily from livestock sales (\$57,636) with crop sales of \$28,745. Northern Plains farms have the highest cash incomes. Net *farm* income averaged \$14,074 at the U.S. level.

Production Costs

U.S. farmers planted oats on 6.64 million acres in 1994 and produced 229 million bushels, up 11 percent from 1993. Based on USDA's survey, cash costs of producing 1994 U.S. oats averaged \$75 per planted acre and total economic costs averaged \$146 per acre. Fertilizer and repair costs accounted for half of the variable costs. At the average harvest-month price of \$1.25 per bushel, two-thirds of oat growers were able to cover cash costs. When capital replacement costs were included, 42 percent of growers were able to cover costs.

Distribution of Costs

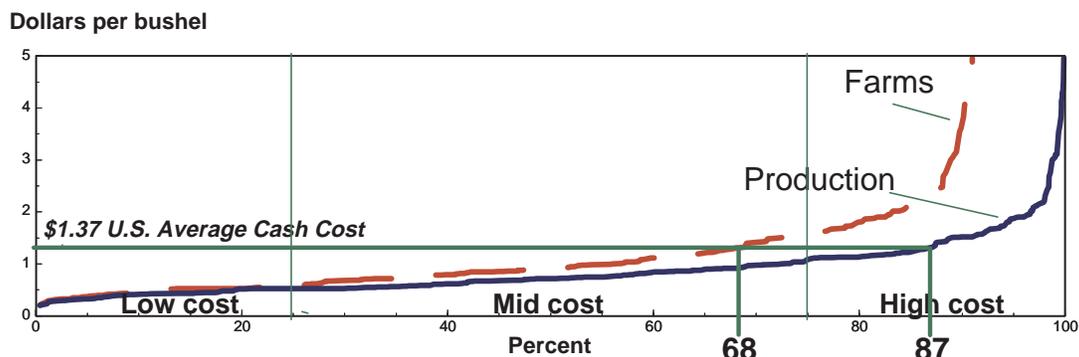
Estimated 1994 variable costs were converted to a per-bushel basis and ranked from lowest to highest to form a weighted cumulative distribution of farms and production.

Twenty-five percent of farms had per-bushel variable costs of \$0.59 or less (low-cost), and accounted for 38 percent of the total production. At the other end of the distribution, 25 percent of farms had variable costs of \$1.55 or more per bushel (high-cost) and accounted for 9 percent of the oat production. High-cost producers had much lower yields than expected and used more inputs than others.

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Cumulative distribution of oats variable cash expenses

About 68 percent of FCRS oat farms in 1994 had variable costs of production at or below the average cost of \$1.37 per bushel, representing 87 percent of oat production.



Source: 1994 Farm Costs and Returns Survey, ERS/USDA.

Table 1-Oat farm characteristics and input use by region, 1994

| | Northeast | North Central | Northern Plains | All farms 1/ |
|---------------------------------------|-----------|------------------|--------------------|-----------------|
| Number of oat farms | 13,859 | 108,964 | 28,626 | 158,812 |
| Percent of FCRS farms | 8.73 | 68.61 | 18.03 | 100.00 |
| Farm size: | | | | |
| Total acres operated | 342 | 339 | 1,666 | 619 |
| Oat acres operated | 25 | 20 | 40 | 25 |
| Farm production value | 90,651 | 104,481 | 107,285 | 104,902 |
| Oat production value | 1,972 | 1,401 | 2,263 | 1,676 |
| Sales class - percent of farms: | | | | |
| Less than \$50,000 | 52.18 | 35.20 | 28.83 | 35.78 |
| \$50,000-\$99,999 | 25.80 | 28.49 | 25.40 | 27.72 |
| \$100,000 or more | 22.02 | 36.30 | 45.77 | 36.49 |
| Oat acreage - tenure: | | | | |
| Percent owned | 57.12 | 55.25 | 50.94 | 53.02 |
| Percent cash rented | 37.82 | 29.59 | 26.89 | 30.02 |
| Percent share rented | 3.66 | 14.58 | 21.65 | 16.34 |
| Percent free rented | 1.39 | .58 | .53 | .62 |
| Actual oat yields (bu/planted acre) | 55.12 | 56.03 | 50.41 | 54.45 |
| Expected oat yields (bu/planted acre) | 69.93 | 68.98 | 64.06 | 67.77 |
| Seeding rate-all acres (bu/acre) | 2.86 | 2.87 | 2.49 | 2.76 |
| Percent of home-grown seed | 20.96 | 29.15 | 70.09 | 40.46 |
| Fertilizers (percent using): | | | | |
| Any fertilizer | 97.67 | 73.18 | 69.94 | 73.86 |
| Nitrogen | 92.13 | 48.46 | 66.92 | 55.87 |
| Phosphorus | 92.23 | 52.86 | 49.10 | 54.65 |
| Potassium | 91.60 | 52.65 | 13.14 | 47.38 |
| Manure | 22.52 | 25.27 | 3.73 | 20.07 |
| Fertilizer application rate: | | | | |
| Nitrogen (lbs/acre) | 28.43 | 17.68 | 30.07 | 24.30 |
| Phosphorus (lbs/acre) | 46.15 | 26.88 | 15.45 | 24.92 |
| Potassium (lbs/acre) | 45.55 | 32.61 | 1.04 | 22.94 |
| Chemicals (percent using): | | | | |
| Any chemicals 2/ | 52.82 | 15.88 | 42.18 | 24.57 |
| Herbicide acre-treatments | .64 | .18 | .51 | .33 |
| Custom operations (percent using): | | | | |
| Any custom operations | 37.04 | 43.43 | 39.25 | 42.53 |
| Land prep/cult | 5.54 | 10.69 | 3.90 | .52 |
| Planting | 6.80 | 3.76 | 1.03 | 3.36 |
| Fert/Chem application | 16.10 | 22.36 | 26.25 | 22.43 |
| Harvesting/hauling | 26.19 | 27.30 | 18.54 | 25.83 |
| Fuel use: | | | | |
| Diesel (gal/acre) | 6.91 | 4.59 | 4.09 | 4.68 |
| Gasoline (gal/acre) | 2.98 | 2.62 | 2.64 | 2.93 |
| Unpaid labor (hrs/acre) | 3.29 | 2.95 | 1.54 | 2.51 |
| Paid labor (hrs/acre) | .65 | .36 | .06 | .33 |
| Cost Group (percent in group): | | | | |
| Low-cost | .39 | 69.01 | 27.02 | 100.00 |
| Mid-cost | 9.07 | 72.68 | 14.22 | 100.00 |
| High-cost | 16.34 | 60.09 | 16.67 | 100.00 |
| All farms 1/ | 8.73 | 68.61 | 18.03 | 100.00 |

1/ All farms category includes California, Oregon, and Texas which could not be published separately due to data disclosure problems. 2/ Surveyed oat farmers reported using only herbicides.

Table 2-Oat farm characteristics and input use by production cost group, 1994

| | Low cost | Mid cost | High cost | All farms 1/ |
|---------------------------------------|----------|----------|-----------|-----------------|
| Number of oat farms | 39,582 | 79,472 | 39,758 | 158,812 |
| Percent of FCRS farms | 24.92 | 50.04 | 25.03 | 100.00 |
| Sales class - percent of farms: | | | | |
| Less than \$50,000 | 26.18 | 36.54 | 43.83 | 35.78 |
| \$50,000-\$99,999 | 40.81 | 23.51 | 23.10 | 27.72 |
| \$100,000 or more | 33.01 | 40.45 | 33.07 | 36.49 |
| Oat acreage - tenure: | | | | |
| Percent owned | 42.87 | 53.35 | 65.24 | 53.02 |
| Percent cash rented | 25.63 | 36.72 | 19.96 | 30.02 |
| Percent share rented | 31.51 | 9.39 | 13.21 | 16.34 |
| Percent free rented | .00 | .54 | 1.59 | .62 |
| Actual oat yields (bu/planted acre) | 74.58 | 57.26 | 22.05 | 54.45 |
| Expected oat yields (bu/planted acre) | 72.22 | 68.81 | 59.62 | 67.77 |
| Seeding rate-all acres (bu/acre) | 2.77 | 2.78 | 2.70 | 2.76 |
| Percent of home-grown seed | 56.47 | 32.15 | 39.48 | 40.46 |
| Fertilizers (percent using): | | | | |
| Any fertilizer | 53.14 | 75.88 | 90.46 | 73.86 |
| Nitrogen | 47.33 | 53.34 | 69.42 | 55.87 |
| Phosphorus | 39.52 | 53.32 | 72.40 | 54.65 |
| Potassium | 31.89 | 49.50 | 58.58 | 47.38 |
| Manure | 27.85 | 16.20 | 20.09 | 20.07 |
| Fertilizer application rate: | | | | |
| Nitrogen (lbs/acre) | 25.69 | 22.39 | 26.97 | 24.30 |
| Phosphorus (lbs/acre) | 18.10 | 26.47 | 30.03 | 24.92 |
| Potassium (lbs/acre) | 12.23 | 23.97 | 34.25 | 22.94 |
| Manure (tons/acre) | .05 | .41 | .65 | .36 |
| Chemicals (percent using): | | | | |
| Any chemicals 2/ | 17.07 | 25.98 | 29.22 | 24.57 |
| Herbicide acre-treatments | .23 | .40 | .31 | .33 |
| Custom operations (percent using): | | | | |
| Any custom operations | 13.14 | 51.43 | 54.02 | 42.53 |
| Land prep/cult | .12 | 12.49 | .95 | .52 |
| Planting | .34 | 5.96 | 1.17 | 3.36 |
| Fert/chem application | 11.75 | 22.80 | 32.32 | 22.43 |
| Harvesting/hauling | 5.43 | 33.32 | 31.18 | 25.83 |
| Fuel use: | | | | |
| Diesel (gal/acre) | 3.91 | 4.75 | 5.48 | 4.68 |
| Gasoline (gal/acre) | 2.52 | 3.05 | 3.17 | 2.93 |
| Unpaid labor (hrs/acre) | 2.17 | 2.52 | 2.91 | 2.51 |
| Paid labor (hrs/acre) | .09 | .37 | .53 | .33 |
| Region (percent in region): | | | | |
| Northeast | .39 | 9.07 | 16.34 | 8.73 |
| North Central | 69.01 | 72.68 | 60.09 | 68.61 |
| Northern Plains | 27.02 | 14.22 | 16.67 | 18.03 |
| All farms 1/ | 100.00 | 100.00 | 100.00 | 100.00 |

1/ All farms category includes California, Oregon, and Texas which could not be published separately due to data disclosure problems. 2/ Surveyed oat farmers reported using only herbicides.

Table 3-Oat farm income and balance sheet statements by region, 1994

| | Northeast | North Central | Northern Plains | All farms 1/ |
|------------------------------|-----------------------|------------------|--------------------|-----------------|
| Number of oat farms | 13,859 | 108,964 | 28,626 | 158,812 |
| Percent of FCRS farms | 8.73 | 68.61 | 18.03 | 100.00 |
| Acres operated | 342 | 339 | 1,666 | 619 |
| | Dollars per operation | | | |
| Gross cash income | 80,833 | 92,874 | 103,197 | 95,617 |
| Livestock sales | 66,020 | 57,120 | 56,396 | 57,636 |
| Crop sales | 10,208 | 27,115 | 36,590 | 28,745 |
| Government payments | 1,596 | 4,539 | 6,879 | 4,898 |
| Other farm-related income | 3,009 | 4,100 | 3,333 | 4,339 |
| Less: Cash expenses | 71,351 | 75,060 | 75,749 | 75,523 |
| Variable | 59,593 | 57,490 | 54,628 | 58,040 |
| Livestock purchases | 1,724 | 4,414 | 6,159 | 4,342 |
| Feed | 14,389 | 13,477 | 9,033 | 12,744 |
| Other livestock expenses | 2,492 | 2,019 | 2,238 | 2,081 |
| Seed and plants | 2,587 | 4,033 | 3,574 | 3,838 |
| Fertilizer and chemicals | 8,227 | 11,272 | 9,677 | 10,942 |
| Hired labor | 7,696 | 4,078 | 3,147 | 4,699 |
| Fuels and oils | 3,109 | 3,605 | 5,364 | 3,999 |
| Repairs and maintenance | 8,685 | 6,635 | 7,541 | 7,045 |
| Machine-hire & custom | 3,172 | 2,242 | 2,418 | 2,323 |
| Utilities | 3,132 | 2,291 | 2,416 | 2,424 |
| Other variable expenses | 4,380 | 3,423 | 3,061 | 3,605 |
| Fixed | 11,758 | 17,569 | 21,120 | 17,482 |
| Real estate & property taxes | 3,237 | 2,542 | 3,390 | 2,709 |
| Interest | 3,787 | 6,084 | 6,455 | 5,783 |
| Insurance | 2,160 | 2,580 | 3,525 | 2,708 |
| Rent and lease payments | 2,574 | 6,363 | 7,751 | 6,283 |
| Equals: Net cash farm income | 9,482 | 17,815 | 27,448 | 20,094 |
| Less: | | | | |
| Depreciation | 12,439 | 10,740 | 11,597 | 11,118 |
| Non-cash labor benefits | 661 | 147 | 135 | 213 |
| Plus: | | | | |
| Value of inventory change | 3,362 | 1,293 | -4,880 | 1,311 |
| Nonmoney income | 6,025 | 3,841 | 3,435 | 3,999 |
| Equals: Net farm income | 5,768 | 12,062 | 14,271 | 14,074 |
| Total assets | 531,865 | 412,482 | 561,079 | 468,937 |
| Less: Total debt | 47,927 | 67,878 | 83,876 | 67,668 |
| Equals: Net worth | 483,939 | 344,604 | 477,203 | 401,268 |

1/ All farms category includes California, Oregon, and Texas which could not be published separately due to data disclosure problems.

Table 4-Oat production costs by region, 1994

| | Northeast | North Central | Northern Plains | All farms 1/ |
|----------------------------------|--------------------------|------------------|--------------------|-----------------|
| | Dollars per planted acre | | | |
| Cash expenses: | | | | |
| Seed | 12.65 | 9.29 | 4.79 | 8.19 |
| Fertilizer | 25.25 | 16.71 | 8.57 | 14.95 |
| Chemicals | 2.63 | 1.15 | 2.10 | 1.59 |
| Custom operations | 5.05 | 6.08 | 2.48 | 4.84 |
| Fuel, lube, and electricity | 9.85 | 6.64 | 5.74 | 6.84 |
| Repairs | 14.24 | 9.61 | 11.96 | 10.96 |
| Hired labor | 2.96 | 1.64 | 0.33 | 1.91 |
| Other variable cash expenses | 1.46 | 1.63 | 0.40 | 1.19 |
| Total, variable cash expenses | 74.09 | 52.75 | 36.37 | 50.47 |
| General farm overhead | 7.98 | 4.58 | 3.25 | 5.41 |
| Taxes and insurance | 20.51 | 17.33 | 6.84 | 13.95 |
| Interest | 4.67 | 5.44 | 4.52 | 4.95 |
| Total, fixed cash expenses | 33.16 | 27.35 | 14.61 | 24.31 |
| Total, cash expenses | 107.25 | 80.10 | 50.98 | 74.78 |
| Economic (full-ownership) costs: | | | | |
| Variable cash expenses | 74.09 | 52.75 | 36.37 | 50.47 |
| General farm overhead | 7.98 | 4.58 | 3.25 | 5.41 |
| Taxes and insurance | 20.51 | 17.33 | 6.84 | 13.95 |
| Capital replacement | 22.07 | 17.88 | 21.23 | 19.80 |
| Operating capital | 1.73 | 1.21 | 0.85 | 1.18 |
| Other nonland capital | 13.19 | 11.43 | 12.18 | 11.76 |
| Land | 5.94 | 36.71 | 22.22 | 28.69 |
| Unpaid labor | 19.83 | 17.72 | 9.04 | 14.98 |
| Total, economic costs | 165.34 | 159.61 | 111.98 | 146.24 |

1/ All farms category includes California, Oregon, and Texas which could not be published separately due to data disclosure problems.